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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/309,361 05/11/99 BURROWS

L CALT-2806

EXAMINER

IM52/0612

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VINH, I

ART UNIT

PAPER NUMBER

1765

DATE MAILED:

06/12/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

**Office Action Summary**

Application No.

09/309,361

Applicant(s)

BURROWS, LEE J.

Examiner

LAN VINH

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 19-22 and 26-48 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 22 and 27-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 6, 8, 22, 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al ( US 5,904,912 ) in view of Stoll ( US 5,902,519 )

Kitamura discloses a method for heat treatment of lithium niobate (LN) single crystal or lithium tantalate structure ( crystal ) used for optical amplification device. This method comprises the steps of:

heating the LN structure in a sealed heat treating furnace , the atmosphere of the furnace is in 100% oxygen ( col 11, lines 14-19 ). That reads on heating the LN structure in a sealed pure oxygen gas atmosphere substantially lacking in H<sub>2</sub>O

maintaining the temperature and controlling the atmosphere for 10-12 hours while heating the LN structure( col 11, lines 16-17 ) reads on maintaining temperature and pressure for an anneal period

cooling the LN structure to room temperature ( col 11, lines 18-20 )

Unlike the instant claimed inventions as per claims 1, 5, 6, 22, Kitamura does not disclose the step of pressurizing the sealed pure oxygen gas atmosphere to exceed ambient atmospheric pressure ( 2 psi-25 psi above ambient atmospheric pressure ( 14.7 psi )

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However, Stoll discloses a process for oxidizing LN comprises the steps of heating LN structure in a sealed chamber containing oxygen at a pressure between 10-100 atmosphere ( 147-1470 psi ) ( col 2, lines 28-30 ). That reads on of pressurizing the sealed pure oxygen gas atmosphere to exceed ambient atmospheric pressure.

Therefore, one skilled in the art would have found it obvious to modify Kitamura by adding the step of pressurizing the sealed pure oxygen gas atmosphere to exceed ambient atmospheric pressure as per Stoll because it is known in the art that higher pressure can be used to increase the oxidizing atmosphere. -

Regarding claims 6, 8, 30, 33, Kitamura discloses heating the LN structure to 950<sup>0</sup> C in 10 hours ( col 11, lines 17-18 )

Regarding claims 7, 31, Kitamura discloses cooling the LN structure to room temperature in 10 hours ( col 11, lines 18-19 )

Regarding claim 34, Kitamura discloses that LN structure is useful for application to an optical amplification device ( col 3, lines 65-67 )

3. Claims 2-4, 9-13, 27-29, 35 -48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al ( US 5,904,912 ) in view of Stoll ( US 5,902,519 ) and further in view of Young et al ( US 5,095,518 )

Kitamura as modified by Stoll has been described above in paragraph 2. Unlike the instant claimed inventions as per claims 2-4, 9-11, 35-37, Kitamura and Stoll fail to disclose the step of locating the LN powder proximate to the LN structure to retard

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outgassing of lithium oxide from the LN structure by separating the LN powder from the LN structure with an interface porous ( porous plug )

However, Young discloses a method for forming optical waveguide from LN structure comprises the step of using a thin sheet of a non-reactive material between the LN substrate and the LN powder while heating the LN substrate ( col 5, lines 1-15 ). That teaching reads on the step of locating the LN powder proximate to the LN structure to retard outgassing of lithium oxide from the LN structure by separating the LN powder from the LN structure with an interface porous ( porous plug ) since Young discloses the same method ( heating a LN structure ) using the same material LN substrate and LN powder.

Therefore, one skilled in the art would have found it obvious to modify Kitamura and Stoll by adding the step of step of locating the LN powder proximate to the LN structure from the LN structure by separating the LN powder from the LN structure with an interface porous/ thin sheet as per Young because Young teaches that the thin sheet /interface isolates the LN substrate from direct contact with the LN powder ( col 5, lines 1-3 )

Regarding claims 10, 11, 39, 40, 45, 46, Kitamura discloses heating the LN structure to 950<sup>0</sup> C in 10 hours ( col 11, lines 17-18 )

Regarding claims 13, 42, Kitamura discloses cooling the LN structure to room temperature in 10 hours ( col 11, lines 18-19 )

Regarding claims 43, 44, 48, Kitamura discloses that LN structure is useful for application to an optical amplification device ( col 3, lines 65-67 )

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4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Holman ( US 4,396,246 ) discloses that higher pressure can be used to increase the oxidizing atmosphere while heating LN structure.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-13, 17-18, 27-48 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAN VINH whose telephone number is 703 305-6302.

The examiner can normally be reached on Monday-Friday 8:30 -6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BENJAMIN L UTECH can be reached on 703 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-3599 for regular communications and 703 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

  
BENJAMIN L. UTECH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

LV  
June 7, 2001